



CLASSIFICATION



Southern European Task Force (SETAF) /US Army Africa Science & Technology Overview

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June 2009

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Agenda



- Mission
- Organization
- CG Guidance
- S&T Assessment
- Project Examples



Mission

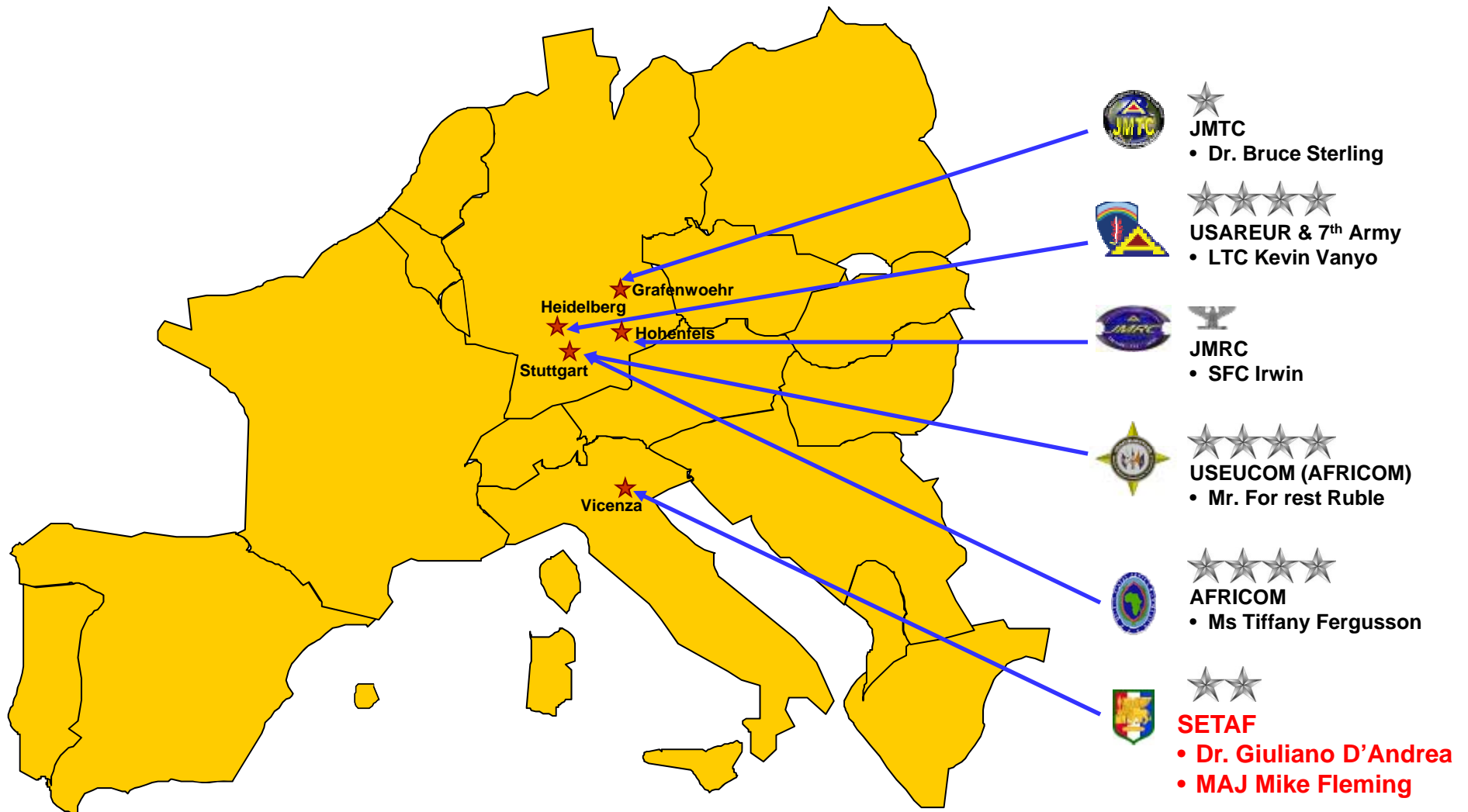
MISSION: *Provide commanders immediate access to labs and centers in AMC's RDECOM. Expedite technology solutions to soldiers.*

Essential Tasks

- **ADVISE** Commanders and their General Staffs
- **DEMONSTRATE** to soldiers in the field, rapid solutions to improve:
 - Performance, Readiness, Safety, Training and O&S Cost Savings
- **ASSIST** Command Group in the preparation of Operational Needs Statements
- **SERVE** as a communications link on technology issues between soldiers and the materiel development community



Organization





Commanding General Guidance

- S&T mission priorities to support SETAF Transformation:
 - Force Protection
 - Life Support
 - C3 (*Command, Control, and Communications*)
 - ISR (*Intelligence, Surveillance, and Reconnaissance*)
 - Training and Simulation



S&T Assessment

- Capability gaps with potential S&T solutions
 - Force Protection
 - Ability to assess threats 3-5 km beyond perimeter of Forward Command Post (FCP)
 - Ability to identify, respond, and deny threats access to FCP
 - Life Support
 - Protected non-tactical vehicles to support sustained security engagement with Africa land Forces
 - Multipurpose, quick erect, lightweight personal hygiene facilities
 - Lightweight, deployable, and renewable power generation



S&T Assessment

- Capability gaps with potential S&T solutions
 - Command, Control, and Communications
 - Language translation for African languages
 - Communications between forward deployed elements in rural and remote locations with SETAF Headquarters
 - ISR
 - Ability to integrate field intelligence (images) with Area of Operation maps
 - Training and Simulation
 - Mission specific planning, training and rehearsal applications
 - Medical training



Project Examples



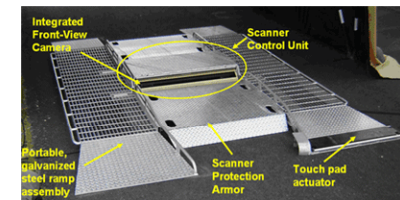
FANCOPTER

(able to identify/ assess potential threats 3-5km from Command Post)



Automatic Under Vehicle Inspection System

(able to inspect vehicles safely 2000 ft from secured areas)



Civilian Light Armored Vehicles

(able to support sustained security engagement with Africa Land Forces in promoting peace and stability in Africa)



Pneumatic Shower Tent Station

(12 shower stalls with dividing panel for males and females; Integral hot water and air; Internal illumination; Locking doors and windows)





Project Examples



Power Shade

(able to generate electrical power in areas where fuel re-supply is impractical)



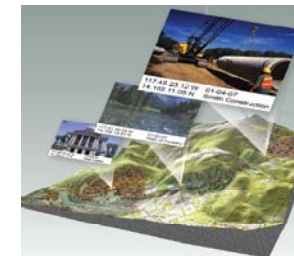
Voice Response Translator

(able to translate multiple African languages)



GPS Enabled Tactical Camera

(able to integrate field intelligence –images– with Area of Operation maps)



RealWorld

(able to create mission specific planning, training and rehearsal applications)





OTHER SETAF/AFRICA TEAM ACTIVITIES

1. **Smart Card Food Service Operations** *(To reduce admin and speed up headcount process at DEFAC. Presently developing a timeline for implementation)*
2. **Power Optimizer for the Warfighters' Energy Requirements** *(Worked with CECOM: Obtained & Delivered to the Brigade & SETAF the Battery Calculator, etc..)*
3. **120MM MORTAR** *(Provided data to 2-503d (- velocity; elevation, apogee, expected range) for the M931 Full Range Practice Cartridge - the only 120mm training round)*
4. **TROWBOT** *(JMTC's project –to provide information and enhance force protection in hard to reach areas such as caves, underneath vehicles, non secure rooms, etc..)*
5. **BORESIGHT FIXTURE** *(Delivered 18 each to the 1-503d and 2-503d)*
6. **OIL-CAT** *(Used successfully at Dal Molin to blend fuel from the six light sets)*
7. **BATTCAVE** *(Working with CERDEC to deliver the 2d BattCave –free– in June 09)*
8. **SKYSITE** *(Communication in rural & remote locations – 173d BDE & SETAF- Preparing the 10 Liner REF paper for the 173d to purchase one).*
9. **SMARTRACK** *(Automate the inventory and accountability system)*
10. **BULLET CATCHER** *(reduce maintenance and operational costs of catching and collecting bullets at the indoor “granular rubber” firing range.)*
11. **FIRST ROCK** *Vicenza Community Engagement Program – “**Volontariato**”*





Questions?



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FanCopter (FC)

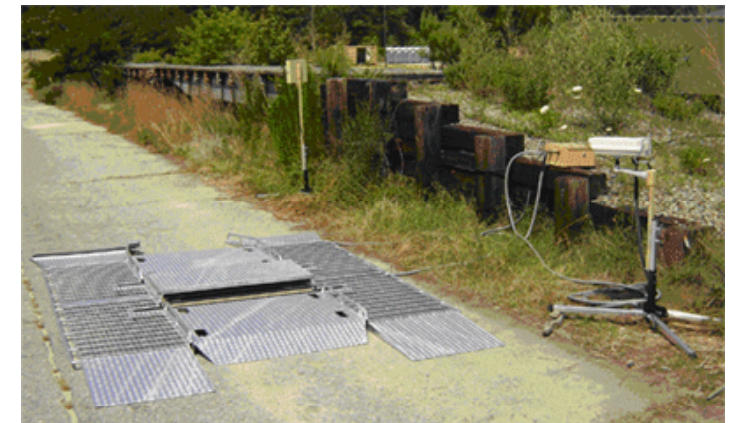
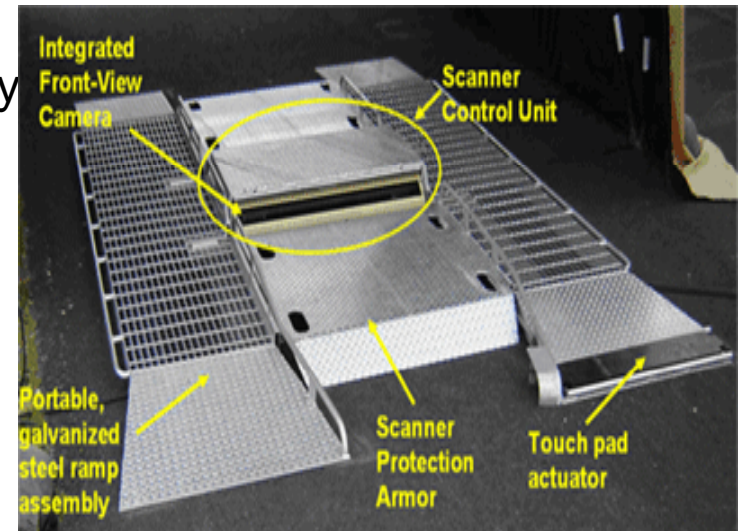
- Problem:
 - SETAF needs ability to identify/ assess potential threats 3-5km from Command Post
- Discussion:
 - Recommended small, lightweight, quiet, video capable unmanned aerial vehicle (UAV)
 - Worked with PM Unmanned Aerial Systems (UAS) to identify solution
 - Existing and emerging US systems do not meet SETAF requirements
 - Commercial German UAV, FanCopter, meets general requirements
 - Conducted demonstration for SETAF CG/ Staff
 - Ordered one FC UAV for SETAF to conduct extended operational assessment
 - Expected delivery Aug 09
- Path Forward:
 - Conduct operational assessment
 - Coordinate w/ PM UAS to support potential transition to Program of Record (POR)





Automatic Undercarriage Vehicle Inspection System (AUVIS)

- Problem:
 - SETAF needs ability to inspect vehicles safely 2000 ft from secured areas
- Discussion:
 - Proposed portable Undercarriage Vehicle Inspection System (AUVIS)
 - Used by CENTCOM/ SOUTHCOM
 - System capabilities include:
 - Integrated, remotely operated camera
 - Recalls and compares undercarriage images based on vehicle finger print
 - Automatically detects foreign objects and alerts security personnel
 - Inspects vehicles travelling up to 15mph
 - Integrates with other access control technologies
 - License plate readers, CAC readers, etc.
- Path Forward:
 - Coordinate potential operational assessment
 - Coordinate w/ PM Force Protection Systems to support potential transition to POR





Civilian Light Armored Vehicles (CLAV)



- Problem:
 - SETAF needs a Civilian Light Armored Vehicle (CLAV) to support sustained security engagement with Africa Land Forces in promoting peace and stability in Africa
- Discussion:
 - Worked with TACOM Non-Standard Tactical Vehicles Team to identify potential solutions
 - Chevy-Armored Suburban and Silverado Crew Cab-Arm, Lenco Bear Cat VIP and ProCat, Ford F-550, Toyota Land Cruiser, and the Prado
 - Recommended the Toyota Land Cruiser as the best potential solution
 - Developed Operational Needs Statement (ONS) and submitted to DA
 - Requests SETAF authorization for six CLAVs
 - Awaiting DA level decision
- Path Forward:
 - Facilitate procurement once authorized







Power Shade

- Problem:
 - SETAF needs lightweight, deployable, and renewable power generation
- Discussion:
 - Photovoltaic (PV) integrated shelter items can generate electrical power in areas where fuel re-supply is impractical, silent power generation is required, or environmental concerns limit power generation options
 - NSRDEC would like SETAF to conduct an operational assessment of its “Power Shade”
 - Shelter integrated flexible PV
 - Reduces solar load 80% – 90%
 - Small version provides 1 KW of PV power
 - Medium version provides 2 KW of PV power
 - Modular and expandable
- Path Forward:
 - Coordinate operational assessment with NSRDEC and SETAF
 - Tentatively scheduled for Jul 2009





Voice Response Translator (VRT)

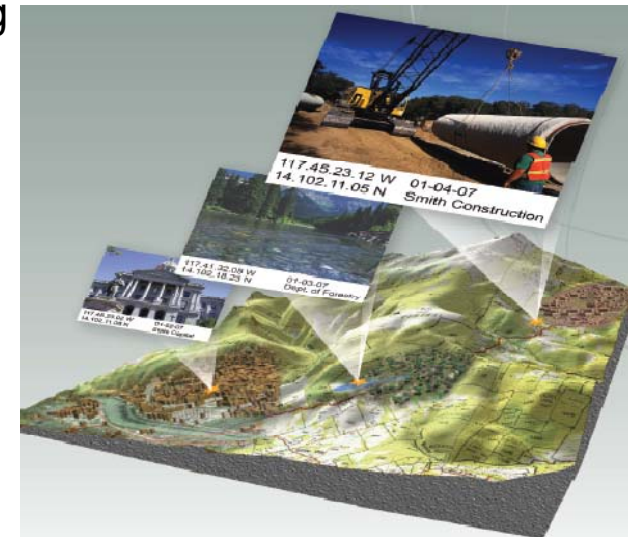
- Problem:
 - SETAF needs a language translation device for multiple African languages
- Discussion:
 - Worked with PM Sequoyah to identify potential solutions
 - Recommended VRT as best potential solution
 - Provides eyes-free, hands-free, voice-to-voice language translation
 - Holds 125 languages including the following major “African” spoken and colonial languages: Afar, Amharic, Arabic-Modern Standard, Egyptian, English, French, Hausa, Hindi, Italian, Mandarin, Oromo, Portuguese, Somali, Spanish, Swahili, and Yoruba
 - Conducted a technology demonstration for SETAF Staff April 2009
- Path Forward:
 - Coordinate integration of additional African languages with PM Sequoyah as required





GPS Enabled Tactical Camera

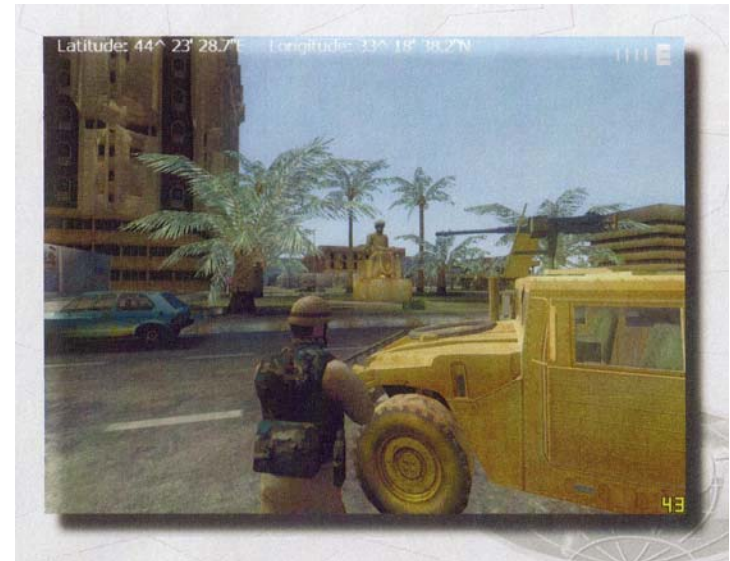
- Problem:
 - SETAF needs ability to integrate field intelligence (images) with Area of Operation maps
- Discussion:
 - Worked with SETAF Force Modernization to identify potential solutions
 - Recommended 500SE from Geo Tactical Solutions as the best potential solution
 - GPS-enabled digital camera embeds exact MGRS coordinates, Zulu time, units ID, and voice recording of why image was captured
 - Fully ruggedized to military specifications to withstand shock, dust and water
 - Lightweight, compact and easy to clean
 - Facilitated SETAF Force Modernization procurement of 10 cameras
- Path Forward:
 - Conduct operational assessment
 - Coordinate w/ Communications-Electronics Research, Development, and Engineering Center (CERDEC) to support potential transition to POR





RealWorld

- Problem:
 - SETAF needs a software package that creates mission specific planning, training and rehearsal applications
- Discussion:
 - Worked with Simulations & Technology Training Center (STTC) to identify potential solutions
 - Recommended DARPA's RealWorld rapid mission rehearsal software
 - Operates on standard laptop computer
 - Enables Warfighters to rapidly create mission-specific simulations in relevant geo-specific 3-D world
 - No cost for Department of Defense use
- Path Forward:
 - Conduct technology demonstration for SETAF Battle Command Training Center
 - Scheduled for Aug 2009
 - Coordinate w/ National Simulation Center & STTC to support potential transition to POR





NanoSats VS. Combat SkySat Network

- **Nanosats** are low-orbiting platforms (LOP) with 90-min orbits and, at best, 15 min coverage/orbit. The 15-min coverage circle moves in relation to the ground user with each pass so that by the 3d pass there is no coverage for the user
- Need 60 of them to provide 24/7 coverage to a given set of users. Cost: \$400K/nanosat or \$24M/6 month coverage.
- **Combat SkySat Network (CSSN)** is 30 times closer than LOP; less power and omni-directional antennas are used. The 15-minute pass of LOP allows only a few minutes for each pass thus impacting coverage over mountains and canyons. CSSN can be flown directly over the desired coverage area for 8-12 hours of continuous coverage deep into canyons and on both sides of multiple mountain peaks. Costs \$22 M for 100% coverage for 1 Year; can launch as needed for non-24/7 requirements.



Click Icon

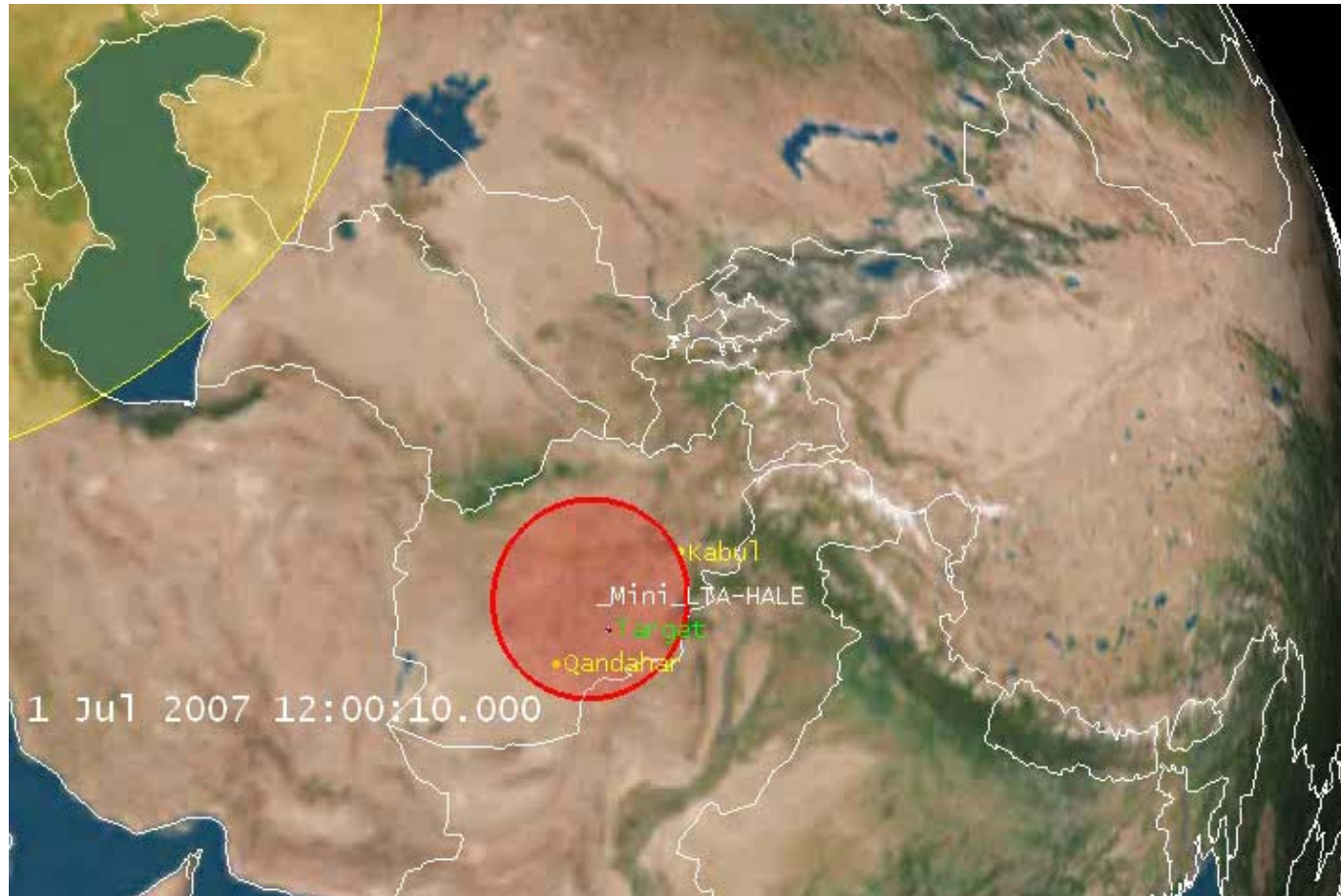




NanoSats VS. CSSN



Click
on
Picture



NOTE:

“Continuing to fund “tactical” satellites out of budget lines intended directly to serve the tactical warfighter does a disservice to both the taxpayer and the warrior on the ground.

“ The Strategic Nature of Tactical Satellites” - *Web site of Maxwell Air Force Base’s Airpower Research Institute*



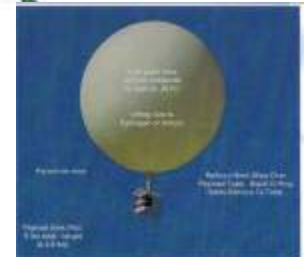
Combat SkySat Network

PROBLEM: Need a reliable, cost-effective way to communicate with people in rural and remote locations & to allow the use of Cell Phones in Health Care”.



Wireless networks have not addressed this problem

DISCUSSION: The CSSN consists of high-altitude, balloon-borne transceivers known as CSS Platforms will vastly increase the existing communications ranges well beyond current MTOE capability. Each CSS Platform takes just 20 min to launch and rises to an altitude of 60 to 100,000 feet, creating a coverage circle of over 400 miles. Has the ability to link in, and communicate with, all assigned PRC 117 and 148 radio systems.



PATH FORWARD: Working with CECOM, prepare a REF (Rapid Equipping Force) 10 liner document for procuring one Combat SkySat Network system.



Click Icon to return Home



BACK UPS





CSSN Component System Description

- Tactical or Portable Launch Control System
 - Command and Control for flight systems & repeater
 - Platform health & status, GPS coverage mapping
- StarFighter™ Recoverable Communications Repeater
 - Military UHF FM voice and data repeater
 - Coverage up to 600 miles at altitudes above 65,000 feet
 - Up to Four-Channel TACSAT - like capability (2 Payloads)
- StarFighter Airframe Platform
 - Synthetic Latex balloon specially designed for operations at altitudes up to 100,000 feet for extended period of time
- Inflation Devices
 - Use existing in-theater helium supplies
 - ~ In supply system and costly
 - Use commercially available hydrogen generators
 - ~ Inexpensive and easy to transport but requires large qty of water to function



Helium



**Hydrogen
Generator**



Cost for Capability



<i>Item Description</i>	<i>Cost per unit</i>	<i>Units required</i>	<i>Total Cost per Item</i>
SDC Provided Items			
Tactical Ground Control Station	\$166,000	1	\$166,000
Portable Ground Control Station	\$50,000	1	\$50,000
High-Altitude StarFighter™ Platform	\$10,000	25	\$250,000
Total Cost for SDC Capability			\$466,000
Additional COTS Items			
Commercial Hydrogen Generator	\$8,000	1	\$8,000
Hydrogen Bottles (192 cu ft)	\$350	15	\$5,250
Estimate Cost for Additional Items			\$13,250
FSR Support			
1 Month FSR Support to setup, train, and maintain Ops in-theater:			\$37,140
3 Month FSR Support to setup, train, and maintain Ops in-theater:			\$96,420
6 Month FSR Support to setup, train, and maintain Ops in-theater:			\$185,340
1 year FSR Support to setup, train, and maintain Ops in-theater:			\$363,180
Estimate Total Cost for Full Initial Capability			\$575,670
Approximate Cost per Level of Operation:			
1 Day Co/Bn Level Operation - up to 3 Repeater Platforms			\$30,000
1 Day BCT Level Operation - up to 15 Repeater Platforms			\$150,000



45 Day Timeline

- **D-Day – Order placed**
 - Recommend purchase through AF NSCS IDIQ contract
 - Purchasing agency submit request to USAF (AZANG) for immediate use of their available inventory
 - Space Data Corp replenish USAF inventory
 - 25 units delivered by D + 45 days
- **Training by USAF or Space Data**
 - Two weeks: classroom plus hands-on
 - Arizona, elsewhere CONUS, in theater